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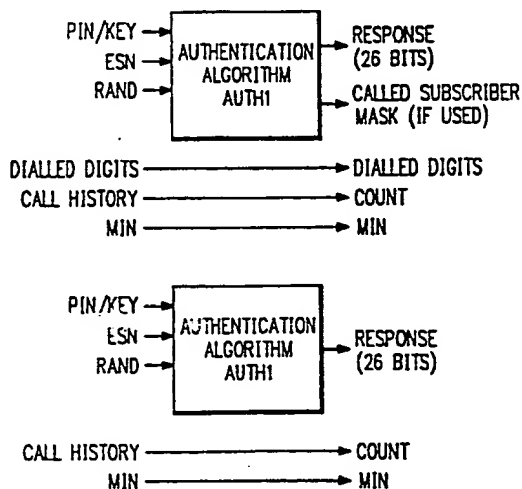
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(56) Documents cited by ISA
US 4914696 A US 4876740 A US 4827507 A
US 4549308 A

(58) Field of search by ISA
US CL. 380/21,23,28,43,44,46,47,48,49,50, 455/33,
375/107,110,112. 370/103,105,107, 379/59,60.

(54) Authentication system for digital cellular communications

(57) A system for the authentication of mobile stations and base stations in a cellular communications network. The system includes an algorithm which generates not only a key dependent response to a random challenge, but also a temporary conversation key or call variable which may be used to encipher traffic in the network. To protect against clones in the network, the algorithm uses a rolling key which contains historical information. A bilateral authentication procedure may be used to update the rolling key and to generate a new conversation key.



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(56) Documents Cited by ISA

US 5410602 A US 5392356 A US 5341427 A
US 5301247 A US 5249230 A US 5227613 A
US 5196840 A US 5077790 A US 4876716 A
US 4268715 A

(58) Field of Search by ISA

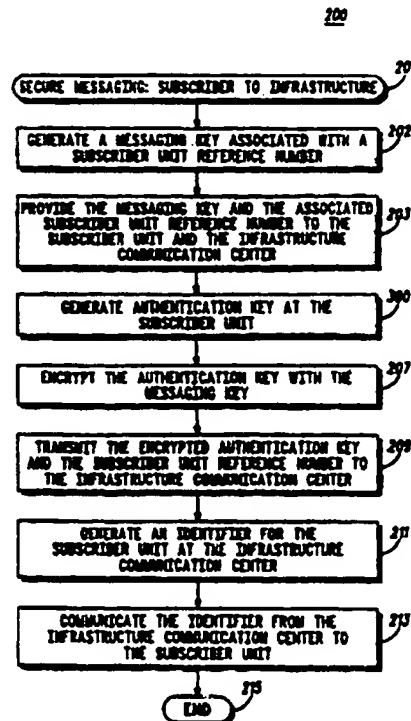
INT CL⁶ H04L 9/16 9/22 9/32
U.S.: 380/21,23,44

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(54) A method of messaging in a communication system

(57) A communication system (100) employs a method of messaging between a subscriber unit (105) and an infrastructure communication center (101). A messaging key associated with a subscriber unit reference number is provided (203, 403) to the subscriber unit (105) and to the infrastructure communication center (101). An authentication key and/or an identifier for the subscriber unit (105) is then produced (300, 407) by either the subscriber unit (105) or the infrastructure communication center (101). The authentication key and/or the identifier is encrypted (207, 413) with the messaging key and is subsequently communicated (209, 415) between the subscriber unit (105) and the infrastructure communication center (101).



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